**WARM UP NAME: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

1. A grocery store manager wishes to determine whether a certain product will sell equally well in any of five locations the store.  Five displays are set up, and the resulting numbers of the product sold are 43, 29, 52, 34, and 48.  Is there enough evidence that the location makes a difference (are the locations **equally** as popular, or not)?  Test at the 5% significance level.
   1. Write the Hypotheses:
   2. Write your observed and expected values:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Location** | **1** | **2** | **3** | **4** | **5** |
| **Observed** |  |  |  |  |  |
| **Expected** |  |  |  |  |  |

* 1. Check the conditions:

**STATE CHECK**

1. Categorical Data
2. SRS
3. All expected counts > 5
   1. Statement:
   2. Mechanics:

=

* 1. P-Value:
  2. Conclusion:

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**ANSWERS**

1. A grocery store manager wishes to determine whether a certain product will sell equally well in any of five locations the store.  Five displays are set up, and the resulting numbers of the product sold are 43, 29, 52, 34, and 48.  Is there enough evidence that the location makes a difference (are the locations **equally** as popular, or not)?  Test at the 5% significance level.
2. Write the Hypotheses:

**Ho: The distribution of sales is the same for all 5 locations**

**Ha: the distribution of sales is not the same for all 5 locations**

**OR Ho: The distribution of sales is uniform for the 5 locations**

**Ha: The distribution of sales is not uniform for the 5 locations**

1. Write your observed and expected values:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Location** | **1** | **2** | **3** | **4** | **5** |
| **Observed** | **43** | **29** | **52** | **34** | **48** |
| **Expected** | **41.2** | **41.2** | **41.2** | **41.2** |  |

1. Check the conditions:

**STATE CHECK**

1. **Categorical Data 1) The different locations are categorical**
2. **SRS 2) Assumed that the sample is representative of all sales**
3. **All expected counts > 5 3) All expected counts = 41.2 > 5**
4. Statement:

**Conditions have been met to use a Chi Square distribution for a Chi-Square GOF test.**

1. Mechanics:

**= 8.903**

1. P-Value: **P( > 8.903) = 0.0636 df = 4**
2. Conclusion:  **We fail to reject Ho because the p-value of 0.0636 > alpha = 0.05. We have insufficient evidence that the distribution of sales is not the same throughout the 5 locations.**